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Application No. 10/530,126
Response to After Final Office Action of June 24, 2009

Docket No.: 0933-0240PUS1
Art Unit: 1623
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AMENDMENTS TO THE CLAIMS

1-93. (Cancelled)

94. (Previously Presented) A method for the preparation of glycoconjugates comprising reacting under condensing conditions involving acid or metal catalysis at least two non-protected saccharides selected from the group consisting of:

A. aldomonosaccharides

B. deoxyhexoses

C. N-acetylaldoses

D. sialic acids

E. hexuronic acids

F. oligosaccharides containing a saccharide from any one of groups A – E

G. polysaccharides containing a saccharide from any one of groups A – E

so that said saccharides are selected from at least two of groups A – G;

in order to form a glycosidic bond between said saccharides through any free hydroxyl group position in said saccharides,

wherein C1-positions of the reacting saccharides are not protected.

95. (Previously Presented) The method according to claim 94, wherein

group A consists of pentoses and hexoses;

group B consists of fucose and rhamnose;

group C consists of N-acetylglucosamine and N-acetylgalactosamine;

group D consists of N-acetyl neuraminic acid;

group E consists of galactouronic acid and glucuronic acid; and

group F consists of lactose, maltose, maltooligosaccharides, isomaltose, isomaltooligosaccharides, sucrose, fucose oligosaccharides, xylooligosaccharides, mannose oligosaccharides, GlcNAc oligosaccharides, GalNAc oligosaccharides and cyclic oligosaccharides.

96. (Withdrawn) The method according to claim 95, wherein group A consists of ribose, xylose and arabinose.

97. (Cancelled)

98. (Previously Presented) The method according to claim 94, wherein the reaction is conducted at a temperature ranging from about 1°C to about 180°C.

99. (Previously Presented) The method according to claim 94, wherein the reaction further comprises an alcohol.

100. (Previously Presented) The method according to the claim 94, wherein the chain length of reaction products obtained is two to ten monosaccharide residues and the specific reaction products are isolated.

101. (Withdrawn) The method according to claim 94, wherein at least one of the saccharides are selected from group F or G, and the linkage structure of the saccharide of group F or G remains intact in the reaction.

102. (Previously Presented) The method according to claim 94, wherein the reaction products do not contain anhydro products or contain an amount of anhydro products, which do not cause bitter taste or undesired color to the reaction products, wherein said anhydro products are levoglucosan and/or dehydrated products.

103. (Previously Presented) The method according to claim 94, wherein the reaction products form an oligosaccharide library.

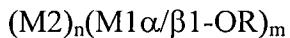
104. (Previously Presented) The method according to claim 94, wherein the products of the reaction comprise a mixture or library of oligosaccharides or polysaccharides including

carbohydrates comprising different substrate carbohydrates glycosidically linked to each other and/or, when substrate carbohydrate(s) is/are oligosaccharide(s) or polysaccharide(s), monosaccharide residues from the different substrates glycosidically linked to each other.

105. (Previously Presented) The method according to claim 94, wherein products of the reaction comprise a mixture or library of oligosaccharides or polysaccharides including carbohydrates comprising:

different substrate carbohydrates glycosidically linked to each other and/or, when substrate carbohydrate(s) is/are oligosaccharide(s) or polysaccharide(s), monosaccharide residues from the different substrates glycosidically linked to each other and/or homotypic glycosidically linked oligomer or polymers of one or several of the substrate carbohydrates and/or glycosidically linked oligomers or polymers of the monosaccharides from the substrate carbohydrates.

106. (Withdrawn) An oligosaccharide library or mixture comprising saccharides according to formula



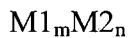
wherein n is an integer from 1 to 4, and integer m is either 0 or 1 and M1 monosaccharide units are selected from the groups A, B, D as defined in claim 94 and M2 is selected from groups A-E as defined in claim 94; OR is a methyl glycoside or ethyl glycoside.

107. (Withdrawn) A neoglycolipid composition comprising a non-natural oligosaccharide mixture comprising randomly linked oligomers of monosaccharides from at least two of groups A-E as defined in claim 94, when said oligomers are linked to a hydrophobic aglycon.

108. (Withdrawn) A method of use wherein the reaction products obtained by a method of claim 94 or compositions containing said products are used as mass finger prints, the method

comprising the step of marking food, beverage or other products with said products.

109. (Withdrawn) An oligosaccharide mixture or fraction comprising oligosaccharides according to the Formula 1:



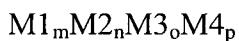
wherein monosaccharide units M1 and M2 selected from at least two of groups A-E as defined in claim 94, are glycosidically linked in any order and m and n are varying integers for different oligosaccharide components from 0 to 6 with the provision that the isomers are present in the mixture so that each oligosaccharide has at least two possible isomerically linkaged forms between every linkage between monosaccharide residues.

110. (Withdrawn) An oligosaccharide mixture or fraction comprising oligosaccharides according to Formula 2:



wherein M1 and M2 and M3 are monosaccharide units from at least two of groups A-E as defined in claim 94 with the provision that M1, M2 and M3 are glycosidically linked to each other in any order in linear or branched sequence and m and n and o are varying integers for different oligosaccharide components from 0 to 6, and with the provision that the isomers are present in the mixture so that each oligosaccharide has at least two possible isomerically linkaged forms between every linkage between monosaccharide residues.

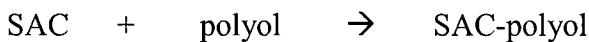
111. (Withdrawn) An oligosaccharide mixture or fraction comprising oligosaccharides according to the Formula 3:



wherein M1, M2, M3, and M4 are monosaccharide units from at least two of groups A-E as defined in claim 94 with the provision that M1, M2, M3, and M4 are glycosidically linked to each other in any order in linear or branched sequence and m, n, o, and p are varying integers for different oligosaccharide components from 0 to 6 with the provision that the isomers are present in the mixture so that each oligosaccharide has at least two possible isomerically linkaged forms

between every linkage between monosaccharide residues.

112. (Withdrawn) A method for the preparation of non-reducing monosaccharides, oligosaccharides or polysaccharides comprising reacting under condensing conditions involving acid catalysis a non-protected reducing monosaccharides, oligosaccharides or polysaccharide, i.e. SAC, or mixtures thereof with a polyalcohol substance, i.e. polyol, the reaction being according to the Scheme 3:



wherein SAC is a non-protected reducing carbohydrate selected from the group consisting of:

A. aldomonosaccharides

C. deoxyhexoses

C. N-acetylaldoses

D. sialic acids

E. hexuronic acids.

F. oligosaccharides containing a saccharide from any one of groups A – E

G. polysaccharides containing a saccharide from any one of groups A – E;

with the provision that polyalcohol substance and carbohydrate are in a used in relative amounts so that there is at least 20 mass % of polyol in the reaction.

113. (Withdrawn) The method according to claim 112, wherein glucose is reacted with polyols or polyalcohols, such as xylitol, sorbitol, or mannitol.

114. (Withdrawn) The method according to claim 112, wherein the product mixture comprising at least 50 mass % of structures $\text{Glc}\beta 1\text{-}6\text{Glc-ol}$, $\text{Glc}\beta 1\text{-}6\text{Glc-ol}$, $\text{Glc}\alpha 1\text{-}1\text{Glc-ol}$, and $\text{Glc}\beta 1\text{-}1\text{Glc-ol}$.

115. (Withdrawn) A composition comprising at least 50 mass % of structures $\text{Glc}\beta 1\text{-}6\text{Glc-ol}$, $\text{Glc}\beta 1\text{-}6\text{Glc-ol}$, $\text{Glc}\alpha 1\text{-}1\text{Glc-ol}$ and $\text{Glc}\beta 1\text{-}1\text{Glc-ol}$.

116. (Withdrawn) An essentially pure monosaccharide conjugate mixture consisting of all non-reducing monosaccharide conjugates according to the formula

$M\alpha/\beta 1-1/x\text{Alcohol}$,

wherein M is a monosaccharide residue selected from the group consisting of Glc, Gal, Man, Xyl, Fuc, GlcNAc with the provision that M is α - or β -linked to position 1 or another hydroxyl marked by x of a polyalcohol substance preferably xylitol, sorbitol, galactitol, or mannitol, when the conjugate mixture optionally comprises also the polyalcohol in free form.

117. (Previously Presented) The method according to claim 99, wherein the alcohol is a polyol.

118. (New) The method according to claim 105, wherein the products of the reaction comprise different substrate carbohydrates glycosidically linked to each other or monosaccharide residues from the different substrates glycosidically linked to each other.

119. (New) The method according to claim 118, wherein the products of the reaction comprise homotypic glycosidically linked oligomers or polymers of several of the substrate carbohydrates.